

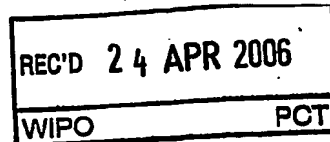
PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)



Applicant's or agent's file reference P034827WO	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/GB2004/003119	International filing date (<i>day/month/year</i>) 16.07.2004	Priority date (<i>day/month/year</i>) 16.07.2003	
International Patent Classification (IPC) or national classification and IPC INV. B65D81/34 B32B27/08 B32B3/10 B65D33/01			
Applicant DUPONT TEIJIN FILMS U.S. LIMITED PARTNERSHIP			
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of 9 sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> <i>sent to the applicant and to the International Bureau</i> a total of sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions). 4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input checked="" type="checkbox"/> Box No. VII Certain defects in the international application <input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application			
Date of submission of the demand 08.02.2005		Date of completion of this report 24.04.2006	
Name and mailing address of the International preliminary examining authority: European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized officer Derz, T Telephone No. +31 70 340-3159 	

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/GB2004/003119

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

Description, Pages

1-27 as originally filed

Claims, Numbers

1-33 as originally filed

Drawings, Sheets

1/1 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1, 2-21, 22, 23-33
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-33
Industrial applicability (IA)	Yes: Claims	1-33
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V.

- 1 The following documents are referred to in this communication:
- D1 : WO 01/92000 A (LIN IRENE) 6 December 2001 (2001-12-06)
- D2 : DATABASE WPI Section Ch, Week 199516
Derwent Publications Ltd., London, GB; Class A92, AN 1995-118516
XP002311726 & JP 07 041043 A (DAINIPPON PRINTING
CO LTD) 10 February 1995 (1995-02-10)
- D3 : GB 1 472 004 A (BREVETEAM SA) 27 April 1977 (1977-04-27)
- D4: US-A-4 640 838 (ISAKSON GARY A ET AL) 3 February 1987 (1987-02-03)
- D5: US-A-4 581 087 (JOHNSON DAVID A) 8 April 1986 (1986-04-08)
- D6: DE 197 10 079 A (BEIERSDORF AG) 17 September 1998 (1998-09-17)

2 Novelty:

Document **D1** discloses (the references in parenthesis applying to this document):
an air permeable composite film which has a polymer layer (10) with a top face (12) and a bottom face (14) and a sealing layer (16) covering the top face. The polymer layer is first perforated by virtue of an impression process to form a plurality of tiny gaps (15) in it for air permeation. Then the sealing layer is coated on the top face of the polymer layer to fill the gaps (fig. 2B, 2C, 4; claims 1, 2, 4-5, 7, 9-10, 12-14, 16, 19, 41).
The coating is water-soluble (starch, amyloid), whereby its thickness is not given.
Further more the degree and size of perforation(s) is not given.

Document **D2** discloses a cover member for press-through pack for e.g. packing medicine tablets which comprises fine perforations formed in a plastic film and a cover member composed of a plastic film. Fine perforations are first formed in plastic film and then a cover member of a plastic film (4) is formed by applying fused resin on the perforated plastic film by extrusion coating so as to fill fused resin in perforations formed in the plastic film.

The barrier function as a cover member is not affected because fusion resin being used to fill in perforations.

In an example the perforations are formed impressed in a 12 µm thick PET film and those perforations are then filled with polyethylene resin by extrusion coating.

The water vapour transmissivity of the obtd. film is 4 g/sq.m/day.

It is highly probable that the extrusion coated PE film has a smaller thickness than the PET support layer (12 μm). D2 is silent about the degree of perforations.

D5 discloses a hand tearable adhesive coated thermoplastic film tape with a low degree of water vapour permeability because the discrete perforations (about 50% of the area; D5, col. 3, lines 54-60) which aid tearability essentially self seal the perforations following their formation. Thickness of coating layer not given, yet the substrate has 2-12 mils = 5-25 microns thickness.

The figures 1 and 4 showing the perforation rolls plus the knowledge of a common film width plus the information given in D5 that the perforations will "self-seal" give the skilled person the conviction (PCT GL ch. III, 12.04) that the **perforation diameter does fall into the broad range of claim 1: 0.05 to 1.5 mm.**

Given the list of thermoplastic polymers (PE, PP, PU polyesters, PVC etc.) of the base film (D5, col. 4, l. 36-42) and the method of production (psa is coated in molten state on cool base film; D5, col. 6, l. 20-34), this indicates that the film in D5 is **heat-sealable**.

As the quality 'low degree of WVTR' applies to a different field (adhesive tapes) than that of the application (ovenable meals) and only in relative wording, it is not for sure whether these qualities overlap (concrete data is absent in D5). However, it is assumed that they do not overlap, because the application discloses desiderata-data of 60-150 g/m²/day and D5 wants to barr WVTR.

Therewith the subject-matter of present claim 1 and mutatis mutandis process claim 22 is not anticipated by D5.

D6 discloses the degree of perforation, their diameter and has a metallisation as barrier (against UV). However, this barrier is then perforated as well and the concept of the present application is about WVTR and water-barriers.

2.1 INDEPENDENT PRODUCT CLAIM 1 & PROCESS CLAIM 22

are rendered novel over D1-(1, 2, 3)-and D2 (2, 3) by these three, technically distinguishing features:

- ☐ (1) barrier layer thickness < 12 μm

- ☐ (2) degree of perforation = 0.1 to 78%
- ☐ (3) av. perforation diameter d , with $0.05 \text{ mm} < d < 1.5 \text{ mm}$

3) Inventive Step

The present application does not satisfy the criterion set forth in Article 33(3) PCT because the subject-matter of Claims 1-33 does not involve an inventive step (Rule 65(1)(2) PCT):

D3 teaches a monolayer film with approx. 750 incisions /m², each having a length of about 2-6 mm (p2, lines 83-85, 26-28).

Anticipation **D4** discloses a self-venting **vapour-tight** microwave oven package with a soluble polyester coating on BOPP, and on column 3, lines 60-64, that the "*deposit*" (=coating; cl. 15) has a thickness of at least 20 micrometers and that the *plurality of venting means* (cl. 9) are *openings, slits or a score* (col. 2, l. 52-55). The unperforated film in D4 is explicitly **vapour-impervious**.

The subject-matter of claim 1 cannot be considered as comprising an Inventive Step because the alternative features mentioned are considered to be trivial for the skilled person, even if there are some wide alterations of degree of perforation and/or perforation diameter.

It is not clear what the concise teaching of this application is, because there are several applicational fields at present (cut plants and ovenable receptacles) as there are barrier materials, while the present common concept, linking these subject-matters, is novel only by features which are unclear (cf. sect. VIII below).

If however the applicant would successfully demonstrate an Inventive Step for this subject-matter and each of these dependent claims, then it appears that the requirement of non-unity (A82 EPC / R 13.1, 13.2 PCT) might not be fulfilled because no single general inventive concept can be recognized. It is noted that common subject-matter would be recognizable, but such common subject-matter would have to be novel *and* inventive or otherwise no same or corresponding

special technical features would be distinguishable.

Re Item VII - Certain observations on the international application:

4) The requirements of Rule 5.1(a)(ii) PCT are not complied with, the documents D2 to D6 should be identified in the description and the relevant background art disclosed therein should be briefly discussed.

In order to expedite further examination you are requested to indicate with your reply the location/s/ in the application as originally filed of the passage/s/ forming a basis for the amendment/s/.

Re Item VIII - Certain observations on the international application:

5) Clarity

The application does not meet the requirements of Article 6 PCT because Claims and 22 are not supported by the description in their breadth:

from page 11-13 and the examples it can be deduced that the barrier layer should be a copolyester or derived that it has to be at least *polymeric*.

The unperforated film in D4 is explicitly **vapour-impervious**, while the description of the present application emphasizes on page 11, lines 24-25 bridging to page 15, line 22 the essential feature of gas-permeability esp. to water vapour and pref. to O₂ (cl. 2).

The present wording of independent claims 1 and 22 does neither specify this essential desiderata feature (it creates novelty over D4), nor mentions the technical features (the polymers as of cl. 3) leading to this result-to-be-achieved, nor quantifies this WVTR effect.

Therewith it is very unclear what makes this laminate '*breathable*' and to what as the description on page 12 lists also **known barrier polymers**:

PET: Poly(ethylene terephthalate), with an oxygen permeability of 8 nmol/(m.s.GPa) , is not considered a barrier polymer by the old definition; however, it is an adequate barrier

polymer for holding carbon dioxide in a 2-L bottle for carbonated soft drinks. The traditional definition of a barrier polymer required an oxygen permeability $< 2 \text{ nmol}/(\text{m.s.GPa})$ [originally, $< (1 \text{ cc.mil})/(100 \text{ in}^2.\text{d.atm})$] at room temperature (Kirk-Othmer Encyclopedia of Chemical Technology).

Nylon: During the early 1990s, four basic barrier materials were developed: PVdC, **Nylon** (listed on page 12, line 16), EVOH and metallized films.

Hence, it is important *to what* entity the laminate and esp. the unperforated film should possess the quality '**breathability**'.

Oxygen: a resin with permeability to oxygen (measured as oxygen transmission rate or OTR) of less than 2 ml/mil thickness/100 sq. in. 24 hour day at one atmosphere pressure. Most OTRs are measured at 73 F and RH specified for the particular conditions. Many older resins can achieve an OTR of 5, but most modern barrier resins have values of 1.0 or lower. For example, standard metallized PET films have an OTR of about 0.3 or lower. Any material with an OTR below 0.1 to be a high-barrier material; these include PVdC and EVOH. Others are called **moderate barriers (PET)**.

Water (moisture) vapour: a resin with a water vapour transmission rate (WVTR) less than 0.10. One defines and classifies moisture barrier polymer structures:

- very low barrier films have a WVTR greater than 0.10,
- low-barrier WVTRs are 0.06 to 0.1,
- intermediate barrier 0.03 to 0.06, and
- high-barrier films have WVTR values of 0.03 or lower.

WVTRs of 1.0 have been available for years with many resin films. The best and current moisture-barrier film, PTCFE, has WVTR values lower than 0.03 for most structures and it is the only true high-moisture-barrier film resin. WVTR is usually determined under conditions of 100 F and 90% RH (quite stringent conditions but not all that unusual in many parts of the U.S.). (quoted from Plastics for Barrier Packaging , September 2000).

Hence, the independent claims 1 and 22 need several insertions in order to overcome

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these objections w.r.t. clarity and support.